DCJ-003-1194003 Seat No. _____

M. Sc. (Sem. IV) (CBCS) (W.E.F. 2016) Examination

July - 2022

Microbiology : MICRO-421

(Biomolecular Engineering)

Faculty Code : 003
Subject Code : 1194003

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 Answer the following (Any seven out of Ten, each of 02 marks) **14**

(1) What are intermolecular forces present in protein structure?

(2) What types of forces give rise to quaternary structures?

(3) Why is a peptide bond planar?

(4) What is a beta sheet in protein structure?

(5) What causes protein folding?

(6) What does a protein engineer do?

(7) What is bioinformatics ? What is Its role in biological research?

(8) What are green catalysts?

(9) What is pyrosequencing?

(10) What is molecular tagging?

2 Answer the following (Any two out of three, each of 07 marks) **14**

(a) What is the difference between the alpha-helix and beta-pleated sheet of protein?

(b) Write a note on the secondary and tertiary structure of a protein.

(c) Which factors decide the catalytic function of protein?

3 Answer the following (a & b - Both are compulsory, each of 07 marks) **14**

(a) What is protein folding, and why is it important?

(b) Write a note on molecular chaperones.

OR

3 Answer the following (a & b - Both are compulsory, each of 07 marks) **14**

(a) What are the steps and strategies for protein engineering?

(b) What is in vitro protein folding? What is its biological significance?

4 Answer the following : **14**

(a) Write a note on the commercial ramification of recombinant catalysts.

(b) Write a note on strategies for primer designing.

5 Answer the following (Any two out of four, each of 07 marks) **14**

(a) How do metabolic pathways evolve?

(b) What is PCR ? Briefly discuss its variants.

(c) Write a note on next generation sequencing

(d) What is molecular cloning? Describe in a nutshell.
